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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------|------------------|
| 10/509,801 | 05/13/2005 | Wataru Miyazaki | Q83939 | 9647 |
| 23373 7590 10/10/2007 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | EXAMINER TRAN, THAO T | |
| | | | ART UNIT | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/509,801 | Applicant(s) MIYAZAKI, WATARU | |
| | Examiner Thao T. Tran | Art Unit 1711 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>9/29/04</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 10

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kano (JP 2000-167999). This reference is cited in the IDS filed on 9/29/2004.

Kano discloses a hardened film layer on a substrate (see paragraph [0021]), the hardened film layer comprising a radiation curable type resin composition. The composition contains a multifunctional (meth)acrylate and a photopolymerization initiator (see abstract).

The polyfunctional (meth)acrylate can be a mixture of different compounds including dipentaerythritol hexaacrylate and urethane acrylate (see paragraph [0009]). The photopolymerization initiator is an oligomer of a hydroxyphenylpropanone (see paragraph [0015]).

Since Kano teaches that the polyfunctional (meth)acrylate has at least two or more acryloyl radicals in the molecule, the urethane acrylate of Kano would also include one with two or three functional groups. Therefore, it would have been obvious to one of ordinary skill in the art to have selected the urethane acrylate oligomer having 2 to 3 functional groups in the mixture of the polyfunctional (meth)acrylates with the dipentaerythritol hexaacrylate in order to obtain the desired results.

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With respect to the weight percent of the urethane acrylate oligomer, it would have been obvious to one of ordinary skill in the art that the amount of the oligomer would have been adjusted depending upon user's preference and intended use.

3. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bishop et al. (US Pat. 6,438,306).

Bishop discloses a coating, comprising a radiation curable composition that contains an oligomer, a reactive diluent, and photoinitiators; wherein the oligomer and the reactive diluent have a functionality of 2 to 12 (see col. 3, ln. 5-60; col. 7, ln. 32-38).

The oligomers include urethane acrylate oligomers having a functionality of 2 (from the reaction of diisocyanate with a diol) (see col. 9, ln. 9-13). The reactive diluents include polyfunctional vinyl monomers such as pentaerythritol tri(meth)acrylate (see paragraph bridging 11-12). The photoinitiators are oligomeric (see col. 15, ln. 3-18).

The composition comprises urethane acrylate oligomer in an amount of 10-90%, the reactive diluent in an amount of 10-70% based on the total resins (see col. 10, ln. 11-14; col. 12, ln. 28-31), overlapping the instantly claimed ranges. It has been considered prima facie obvious when the claimed range and that of the prior art overlap, because by teaching the overlapping portions, Bishop directly teaches the amounts of the components within the claimed ranges.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Downs et al. (US Pat. 5,919,834) in view of Bishop or Kano.

Downs discloses hard coat, comprising a UV cured heat activated composition. Example 8 illustrates the use of 100 parts of a urethane acrylate oligomer (CN964E75), 120 parts of dipentaerythritol pentaacrylate, and 14 parts of 2-hydroxy-2-methyl-1-phenyl-propanone

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(Darocur 1173). CN964E75 is a urethane diacrylate oligomer. Downs does not teach the photoinitiator to be an oligomeric initiator.

Bishop and Kano, each teach a coating composition comprising an oligomer of 2-hydroxy-2-methyl-1-(4-(1-methylvinyl)phenyl) propanone (see Bishop: col. 15, ln. 114-19; Kano: paragraph [0015]).

Therefore, it would have been obvious to one of ordinary skill in the art to have employed the oligomeric photoinitiator, as taught by Bishop or Kano, in the composition of Downs, in order to enhance curing speed, strength, resistance to weathering and chemicals, and lowering yellowness of the coating layer.

With respect to the amount of the urethane acrylate oligomer, what is taught by Downs in Example 8 would translate to 45.45% based on the total amount of the oligomer and the pentaacrylate. However, it would have been obvious to one of ordinary skill in the art that the amount of the urethane acrylate oligomer would have been adjusted in order to obtain the desired results.

Contact Information

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao T. Tran whose telephone number is 571-272-1080. The examiner can normally be reached on Monday-Friday, from 9:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Thao T. Tran
Primary Examiner
Art Unit 1711

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